IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Bruce Douglas Spangrud	Group Art Unit: 3749
Appl. No.	:	10/741,537	
Filed	:	December 19, 2003	
For	:	BARBEQUE GRILL BURNER WITH ENHANCED THERMAL DISTRIBUTION	
Examiner	:	Josiah C. Cocks	

DECLARATION OF BRUCE DOUGLAS SPANGRUD PROVIDED UNDER 37 C.F.R. § 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

I, Bruce Douglas Spangrud, declare as follows:

1. I am a resident of the State of Nevada, U.S.A. I make this Declaration on personal knowledge, and if called and sworn as a witness, I could and would competently testify as set forth below.

2. I am the inventor of the invention claimed in the above-referenced patent application.

3. I have been involved in the design and development of outdoor cooking grills for over 10 years. I am currently the President of Outdoor Kitchen Concepts, Inc., the assignee of the present application. As a result of my work experience, I am intimately familiar with its business and the state of the art in outdoor cooking grills, including burner designs.

4. Many attempts have been made to solve problems associated with outdoor grill burners. As is known, such grills generally have a rather large cooking area, requiring a burner or burners which distribute heat over a large area. Referring to Exhibit A hereto, the most basic burner design is the "straight burner." This burner is an elongated tube having an inlet at one end and a closed opposing end. A number of gas openings are provided along the length of the tube. This burner style suffers from a number of problems. First, the burner provides heat only in the very limited area along the length of the tube. Second, the burner distributes heat very unevenly. In particular, the gas pressure drops substantially moving from the inlet end to the closed end. Thus, much more heat is generated near the inlet end than the closed end.

5. In an attempt to overcome problems associated with the "straight burner," the "S burner" was developed (See Exhibit A). This burner is similar to the "straight burner" in that it has an inlet end and a closed end. This burner, however, has one or more bends. This allows the burner to deliver heat over a larger area. However, this burner still suffers from the problem that the burner distributes heat very unevenly. In fact, because the length of the "S burner" is generally longer than a "straight burner," the drop in pressure, and thus the drop in heat production, from the inlet to the closed end is more pronounced.

6. As yet another attempt to solve the problems associated with these burners, the "U" burner was developed. This is the most common burner design in use today. This burner utilizes a "U"-shaped delivery tube. Gas is provided to the delivery tube through a supply line which leads to the base or apex of the "U" shaped tube. While this design has the advantage that it distributes heat over a wide area, this burner has the significant disadvantage that there is a substantial drop in gas

pressure, and thus heat production, moving from the "U" portion of the burner to the end of each leg, thus resulting in uneven heat distribution along each leg.

7. The burner design illustrated in Figure 2 of German reference 297 20 168 U1 is a variation of the traditional "U"-shaped burner. The goal of the invention detailed in the DE '168 reference appears to be linking multiple burners to one another to simplify ignition of the burners. Thus, the DE '168 reference discloses (referring to Figure 2), a gas-delivering ignition pipe (57) that links all of the burners (46,47,48) together. In this configuration, gas flows from one burner to another via the ignition pipe (57). This configuration has the advantage that when the first burner (46) is ignited, the burning gas will travel along the ignition pipe to the other burners (47,48), igniting them as well. This burner design, however, suffers from the same problems as the "U" shaped prior art burner design described above. In particular, gas is delivered to the "U" portion of each burner, such that there is high gas pressure and high heat generation at the "U" portion of the burner, and low gas pressure and low heat generation at the free ends of the legs of the burners.

8. The DE '168 reference also discloses a means for commonly igniting "straight" burners. This configuration is illustrated in Figure 1. In this case, each burner (10,11,12) comprises a pair of straight leg burners. These burners (10,11,12) are linked by an ignition and burner pipe (39). This ignition pipe (39) includes gas holes (43). This configuration is advantageous because it permits all of the burners to be ignited using a single ignitor (36) (the burning flame travels from the first burner (10) to the ignition pipe (39) and then to the other burners (11,12)). In addition, the ignition pipe (39) provides additional heat along the back of the grill. However, because of the linking of the burners (10,11,12) via the ignition and burner pipe (39), gas provided to the burners naturally flows towards the ignition and burner pipe (39) and the ends (63) of the burners (10,11,12) at the ignition pipe (39).

Thus, this burner design suffers from very uneven heat generation: there is low gas pressure and low heat generation at the front or free ends of the burners, and high gas pressure and high heat generation at the opposing ends of the burners and along the ignition pipe (39). While gas is provided to the burners via "T" shaped delivery pipes (17), this is clearly done to simplify delivery of gas to each of the straight burner elements (otherwise, gas would have to be provided to each burner leg by multiple separate lines), and not for the purpose of attempting to achieve even gas pressure and even heating. This is clearly true because even gas pressure and even heating are not the goal of the design, but rather common ignition is the goal of the design (by which this common ignition design actually promotes uneven gas pressure and uneven heating).

9. My burner design as claimed in the above-referenced application represents an advance over these prior burner designs, including the designs disclosed in the DE '168 reference. In particular, in my invention, combustible gas is evenly distributed throughout a single, closed "U"-shaped burner. Gas is delivered to the burner solely through a pair of supply arms leading to the first and second legs of the burner. In this manner, the gas pressure throughout the "U"-shaped burner is uniform, resulting in uniform heat generation along the entire length of the burner. In particular, because the gas enters the "U"-shaped burner at both legs, the distance from the gas entry sites to either the apex or leg ends is generally the same, resulting in substantially equal gas pressure and heat generation along the burner. This equalization of gas pressure in a single "U"-shaped burner is significantly different than the gas pressures within known burner designs and more specifically the burner configurations disclosed in the DE '168 reference.

10. I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed this 28 day of Nov., 2006.

By: Bruce Douglas Spangrud
Bruce Douglas Spangrud

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